

The history of revision changefor the specification

[illegible]



●Features

High performance (Isat)realized by metal dust core.
Low profile:Thickness max.5.4mm

Low loss realized with low DCR
Capable of corresponding high frequency
Compliance with RoHS and Halogen Free

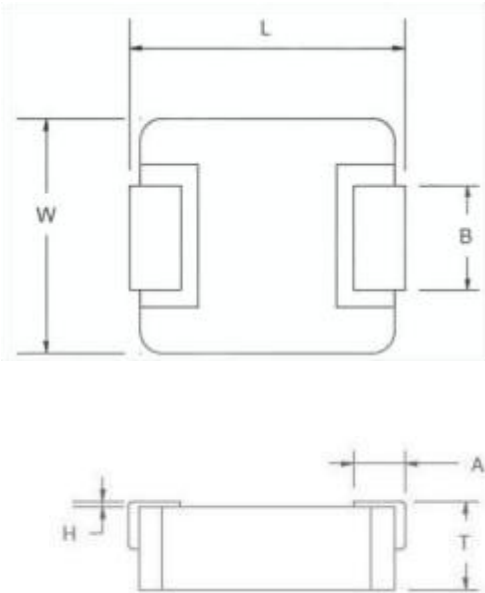
AEC-Q200 qualified

AEC-Q200

●Application

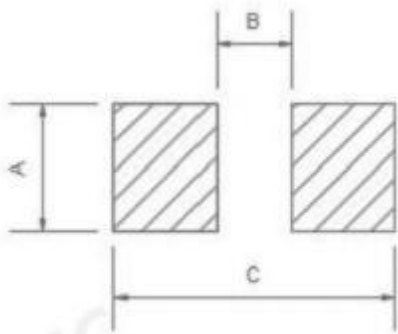
Automotive applications

●Outline Dimensions



Code	Dimensions (mm)
L	10.85±0.35
W	10.0±0.3
B	4.5±0.3
A	2.2±0.5
T	5.4Max
H	0~0.15

Recommend Land Patterns



A	5.0
B	4.9
C	12.88
Unit :mm	

Type Designation

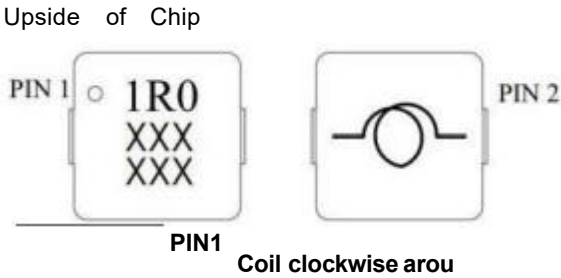
NSRS	1054	R68	M	T6
Series Name	Dimensions	Inductance value	Tolerance Code	Tempera ture resistan ce
N:Automotive S:PowerChoke R:Hot pressing	10 series 5.4mm height	0.68μH	J:5% K:10% L:15% M:20% P:25% N:30%	165℃

Marking and Date Code

The point on the top surface represents winding direction ofchoke.

- 1) Marking
- The inductor is marked with a 3-digit code
- Example--4.7μH→4R7

- 2) XxX
- XXX**
- Internal code



● Specifications

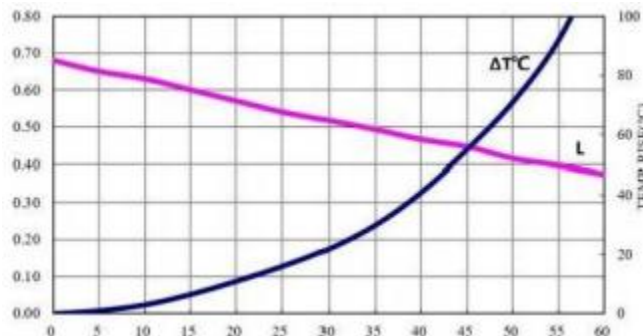
Part Number	LO Inductance (μ H) @0A	Rdc(mQ)		Heat Rating Current DC Amps.Idc(A)		Saturation Current DC Amps.Isat(A)	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
NSRS1054-R68MT	0.68	1.8	2.2	32.6	29.4	46.0	39.4
NSRS1054-1ROMT	1.0	2.3	2.7	30.6	27.5	37.7	32.3
NSRS1054-1R5MT	1.5	3.4	4.1	25.3	22.7	27.3	23.5
NSRS1054-2R2MT	2.2	4.0	4.8	23.5	21.1	25.5	21.8
NSRS1054-3R3MT	3.3	6.1	7.3	19.1	17.1	19.4	16.6
NSRS1054-4R7MT	4.7	8.1	9.8	14.8	13.3	16.0	13.8
NSRS1054-6R8MT	6.8	11.8	13.7	12.2	11.0	13.6	11.6
NSRS1054-100MT	10.0	20.6	23.7	8.9	8.0	13.0	11.1
NSRS1054-150MT	15.0	26.7	30.7	7.8	6.9	9.4	8.1
NSRS1054-220MT	22.0	42.6	49.0	6.1	5.5	9.0	7.7
NSRS1054-330MT	33.0	64.2	73.8	4.9	4.4	7.8	6.6
NSRS1054-470MT	47.0	87.2	100.9	4.2	3.7	5.0	4.3
NSRS1054-680MT	68.0	129.4	149.0	3.4	3.1	4.3	3.7
NSRS1054-101MT	100.0	198.9	229.3	2.9	2.6	3.6	3.1

NOTES:

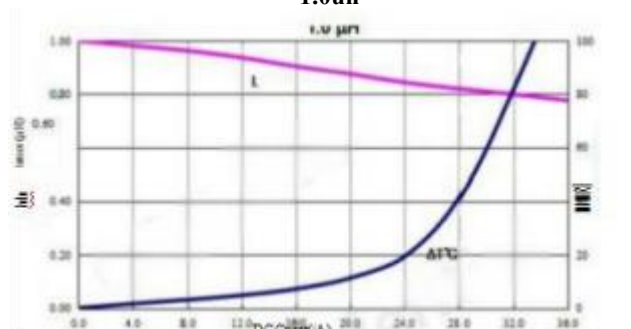
1. Inductance Tolerance $\pm 20\%$.
2. Rated Voltage Max. 80V.
3. All test data is referenced to 25°C ambient.
4. Inductance tested at 100 kHz, 1Vrms.
5. Idc: DC current(A) that will cause an approximate ΔT of 40°C
6. Isat: DC current (A) that will cause LO to droop approximately 30%
7. Operating Temperature Range -55°C to +165°C
8. The part temperature (ambient + temp rise) should not exceed 165°C under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.
9. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
10. Cleaning Process Note
 - (a) If this power choke is dipped in the cleaning agent, such as toluene, xylene, ketone, and ether system, there is a possibility that the performance decreases greatly.
 - (b) The high power ultrasonic washing may damage choke body.
 - (c) Please contact us if you need the cleaning via the above agents or ultrasonic washing.

● PERFORMANCE GRAPHS

0.68uh



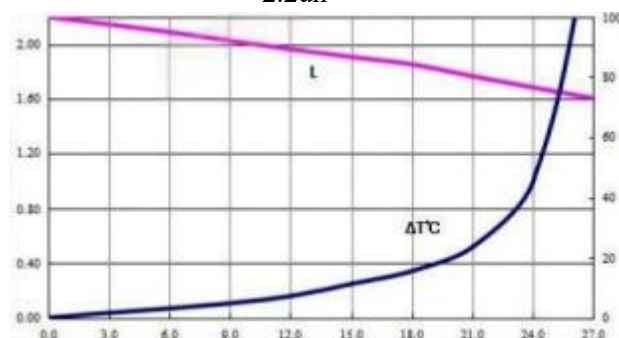
1.0uh



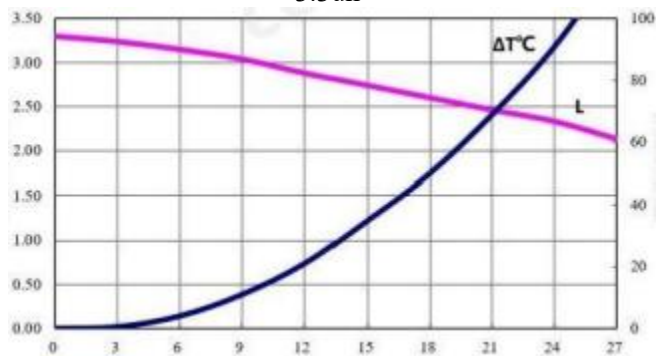
1.5uh



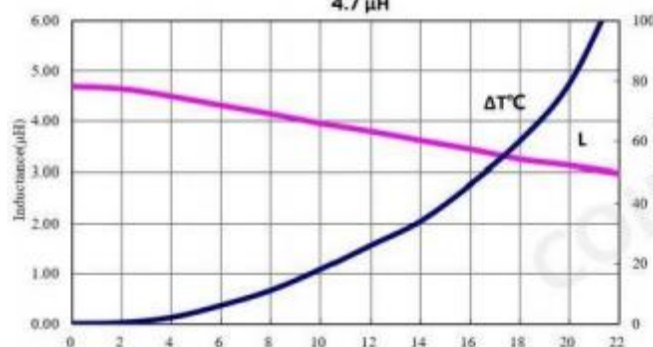
2.2uh



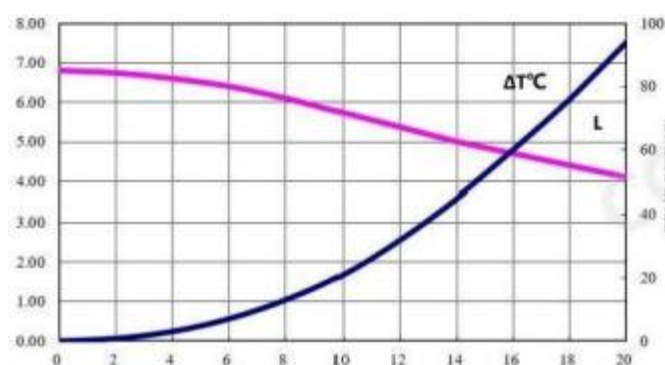
3.3uh



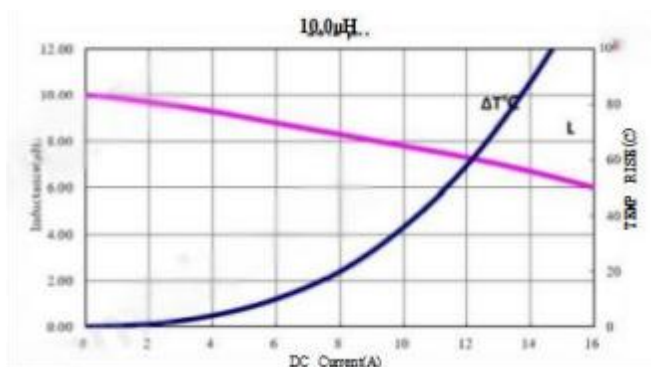
4.7 uH



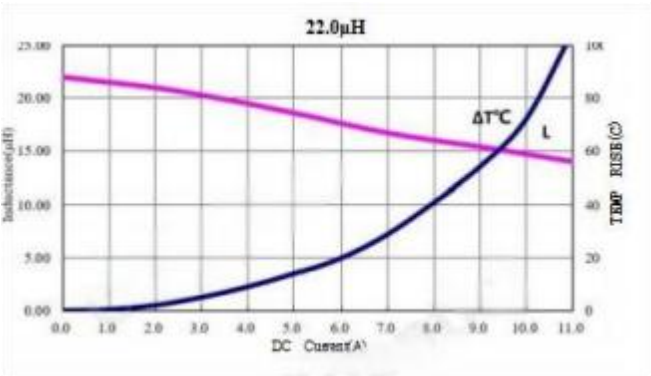
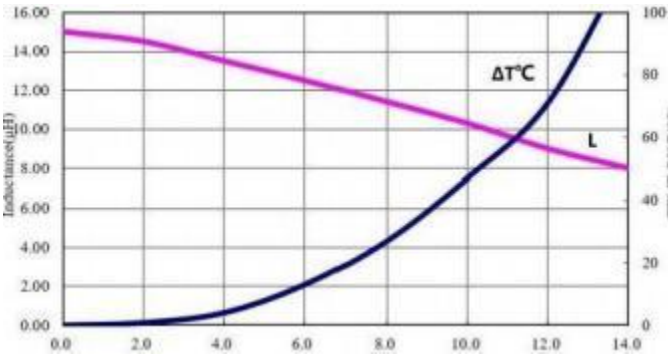
6.8uh



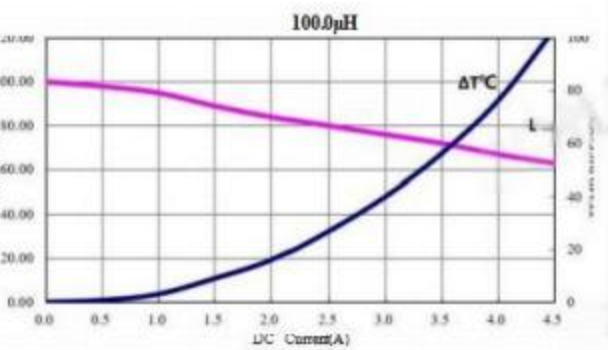
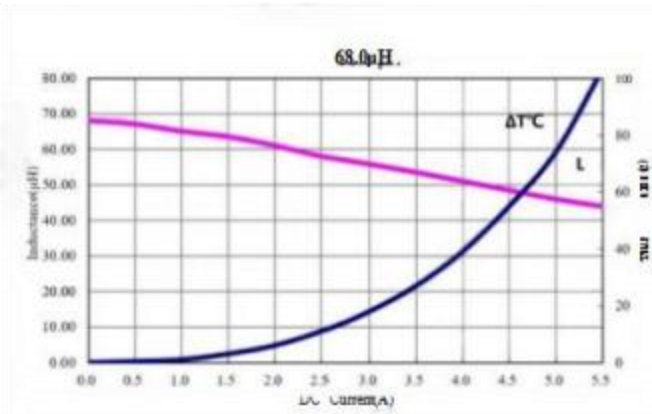
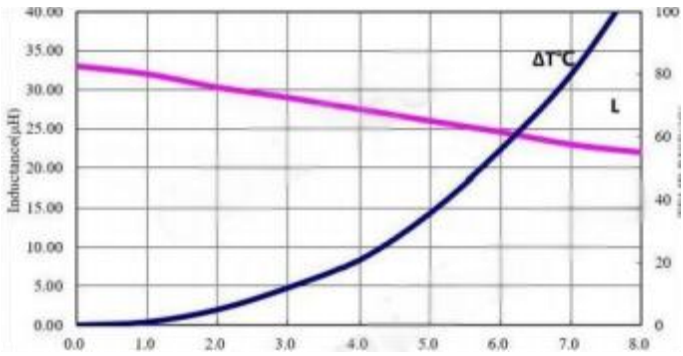
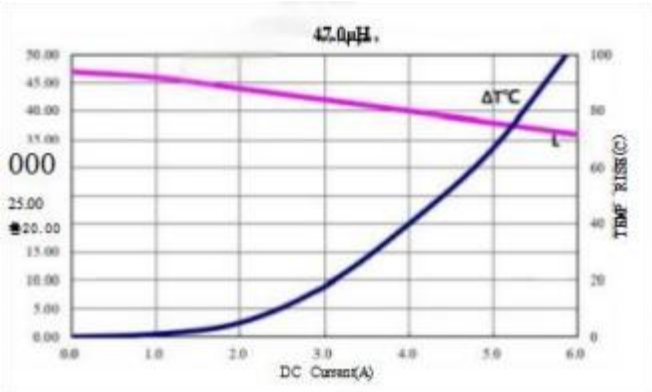
10.0uH



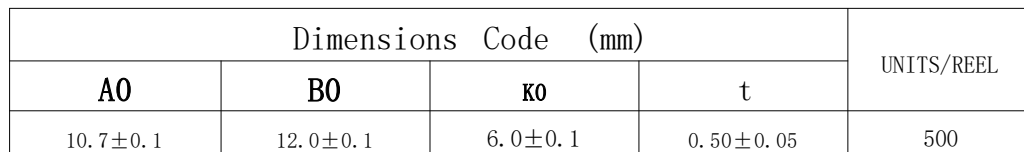
15uh



33uh



(1)Tape packaging dimensions

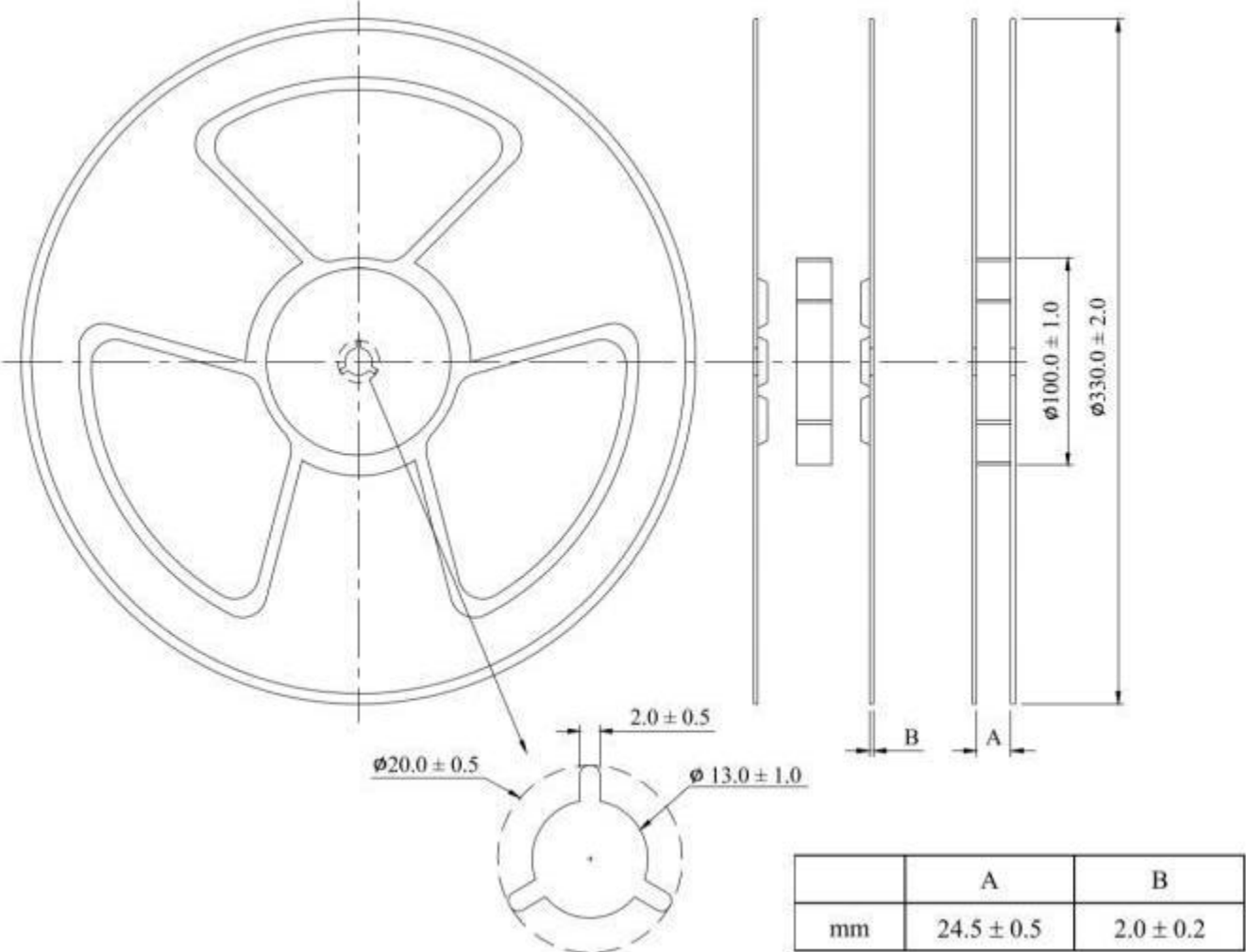


The direction shall be seen from the top cover tape side.



7. Reflow Profile

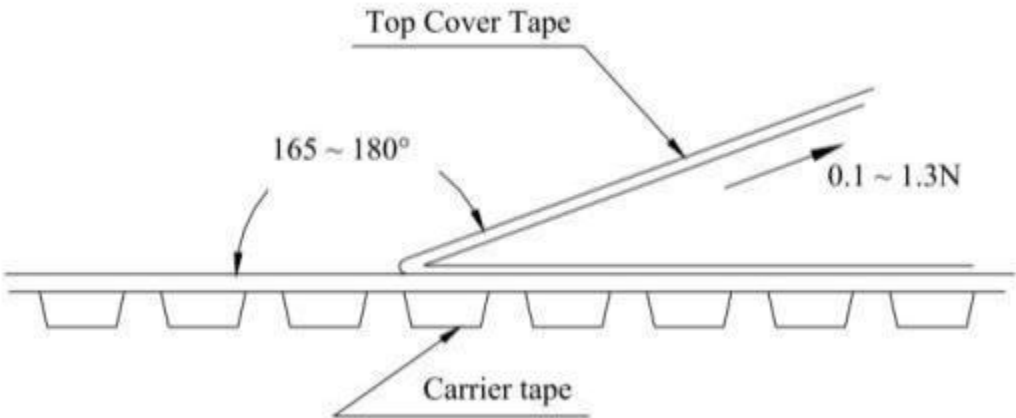
(3) Reel dimensions



(4) Peel force of top cover tape

The peel speed shall be about 300 mm/minute.

The peel force of top cover tapes shall be between 0.1 to 1.3N.

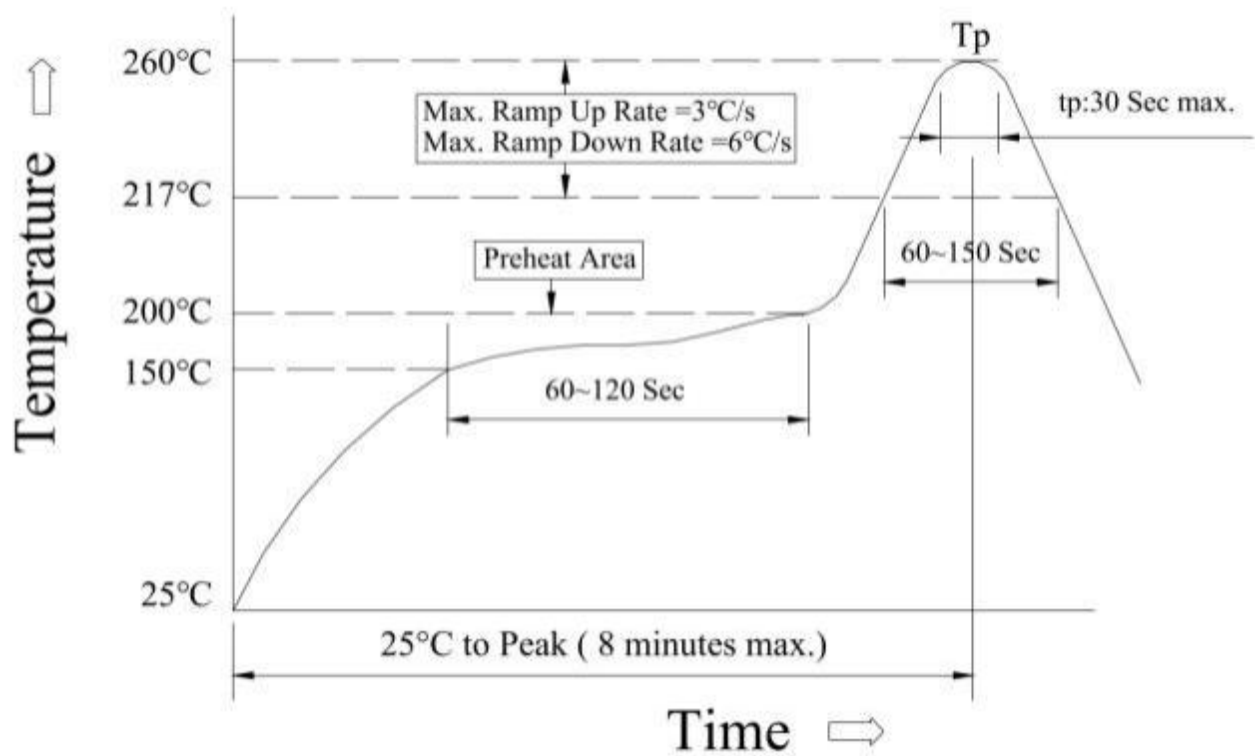


● Reliability

Item No	Item	Reference	Test Method	Spec.
1	External visual	MIL-STD-883 Method 2009	Inspect device construction, marking and workmanship. Pre and Post Electrical Test not required.	No abnormality
2	Physical dimension	JESD22-B100	Verify physical dimensions to the applicable components detail specification. Note: User(s) and Suppliers spec. Pre and Post Electrical Test not required.	No abnormality
3	Electrical characterization	User Spec.	Parametrically test per lot and sample size requirements, summary to show Min, Max, Mean and standard deviation at room as well as Min and Max operating temperatures.	No abnormality
4	High temperature exposure	MIL-STD-202 Method 108	Temperature: 165 °C Duration: 1000hrs	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.
5	Temperature cycling	JESD22-A104	1000 cycles (-55 °C to +165 °C) Measurement at 24 ± 4 hrs. after test conclusion. 30 min maximum dwell time at each temperature extreme. 1 min. maximum transition time.	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.
6	Biased humidity	MIL-STD-202 Method 103	1000hrs. 85 °C / 85% RH. Unpowered. Measurement at 24 ± 4 hrs. after test conclusion.	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.
7	Operational life	MIL-STD-202 Method 108	1000hrs. @ 125 °C, rated current Measurement at 24 ± 4 hrs. after test conclusion.	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.
8	Resistance to soldering heat	MIL-STD-202 Method 210	Magnifications 10X. 260 °C 10 seconds	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.
9	Solderability	J-STD-002	Magnifications 10X. Conditions: SMD type Method B1 @ 245 °C	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder

Item No	Item	Reference	Test Method	Spec.
10	Mechanical shock	MIL-STD-202 Method 213	100g,6ms,3time/direction,using a half-sine waveform	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break. The components do notfall off.
11	Vibration	MIL-STD-202 Method 204	Test from 10-2000Hz 5g for 20minutes,12cycles/axis a total of 4 hours/axis	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break. The components do not fall off.
12	Board flex	AEC-Q200-005	2mm for 60 seconds minimum holding time.	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break. Electrode is not broken
13	Terminal strength	AEC-Q200-006	Shear force:1.8kg,duration:60+1seconds.	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break. Electrode is not broken
14	Resistance to solvents	MIL-STD-202 Method 215	Solvent:AddOKEM clean or equivalent Immersion 3+0.5/-0 minutes,brush 10 strokes(wet bristle)2 to 3oz.,3 times	$\Delta L \leq \pm 10.0\%$ No cracks,separations, crazing,swelling,softening and degradation of body material
15	ESD	AEC-Q200-002	DirectContact Discharge:6KV Air Discharge:12KV->16KV->25KV	$\Delta L \leq \pm 10.0\%$ Without mechanical damage such as break.

● Reflow Profile



(1) Reflow Soldering Method :

Reflow Soldering	Tp:255~260℃	Max.30 seconds (tp)
	217℃	60~150 seconds
Pre-Heat	150 ~ 200℃	60~120 seconds
Time 25℃ to peak temperature	8 minutes max.	

(2) Soldering iron Method : 350±5℃ max.3 seconds